

DOCUMENT-IDENTIFIER: US 20030003756 A1

TITLE: METHOD FOR FORMING CONTACT BY USING ARF LITHOGRAPHY

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14. The method as recited in claim 1, wherein the low-k dielectric sacrifice layer of step f) is removed by a wet etching process using an etching agent comprising H.sub.2SO.sub.4, H.sub.2O.sub.2 and de-ionized water.

DOCUMENT-IDENTIFIER: US 20020168591 A1

TITLE: Method for reducing silicide spiking in a gate

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[0021] A first rapid thermal oxidation (RTO) process is used to form a second silicon oxide layer 37 that is formed of silicon dioxide, or oxygen-rich oxide, with a thickness of approximately 20-30 angstroms (.ANG.). The RTO process allows the oxygen atoms absorbed during the first RTO process to enter into the polysilicon layer 36, which means the polysilicon layer 36 absorbs some oxygen atoms during the first RTO process. The oxygen atoms absorbed by the polysilicon layer 36 don't exist in an oxide-form as the second silicon oxide layer 37. Additionally, in the second embodiment of the present invention, an ion implantation process, as previously mentioned implants the oxygen atoms into the polysilicon layer 36. Since the second silicon oxide layer 37 is not required for the present invention, a cleaning process is performed to remove the second silicon oxide layer 37. The temperature of the first RTO process is approximately 800-1200.degree. C., with a duration of approximately 20-40 seconds. The cleaning process is performed using a cleaning solution formed of H.sub.2O.sub.2 and NH.sub.4OH.

8. The method of claim 7 wherein the cleaning solution comprises H.sub.2O.sub.2 and NH.sub.4OH.

| | Type | L # | Hits | Search Text | DBs | Time Stamp |
|---|------|-----|------|-------------------------|--|---------------------|
| 1 | IS&R | L1 | 1186 | (430/331).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:29 |
| 2 | IS&R | L2 | 154 | (430/134).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:29 |
| 3 | IS&R | L10 | 364 | (438/626).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:32 |
| 4 | IS&R | L13 | 549 | (438/633).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:36 |
| 5 | BRS | L15 | 5 | 13 and "H.sub.20.sub.2" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:45 |

| | Type | L # | Hits | Search Text | DBs | Time Stamp |
|----|------|-----|------|-----------------------|--|---------------------|
| 6 | IS&R | L16 | 443 | (438/638).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:45 |
| 7 | BRS | L17 | 2 | 16 and ("NH.sub.4OH") | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:55 |
| 8 | IS&R | L18 | 347 | (438/906).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:55 |
| 9 | BRS | L19 | 3 | 18 and "NH.sub.4OH" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:59 |
| 10 | IS&R | L20 | 658 | (438/710).CCLS. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 14:59 |

| | Type | L # | Hits | Search Text | DBs | Time Stamp |
|----|------|-----|------|-------------------------|--|---------------------|
| 11 | BRS | L21 | 0 | 20 and "NH.sub.4OH" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:00 |
| 12 | BRS | L22 | 1 | 20 and "H.sub.2O.sub.2" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:01 |
| 13 | BRS | L23 | 351 | 438/for.389.ccls. | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:01 |
| 14 | BRS | L24 | 0 | 23 and "NH.sub.4OH" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:01 |
| 15 | BRS | L25 | 0 | 23 and "H.sub.2O.sub.2" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:02 |

| | Type | L # | Hits | Search Text | DBs | Time Stamp |
|----|------|-----|------|--|--|---------------------|
| 16 | BRS | L26 | 298 | "NH.sub.4OH" and "H.sub.2O.sub.2" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:04 |
| 17 | BRS | L27 | 241 | 26 and ("H.sub.2O" or deionized or DI) | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:05 |
| 18 | BRS | L28 | 2 | 27 and (low adj K adj dielectric) | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:15 |
| 19 | BRS | L29 | 1 | surfactant same fluorosurfactant same (hydrocarbon adj surfactants) | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:17 |
| 20 | BRS | L30 | 1 | surfactant same fluosurfactant | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:17 |

| | Type | L # | Hits | Search Text | DBs | Time Stamp |
|----|------|-----|------|----------------------------|--|---------------------|
| 21 | BRS | L31 | 595 | hydrocarbon adj surfactant | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:20 |
| 22 | BRS | L32 | 901 | "32" and "NH.sub.4OH" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:20 |
| 23 | BRS | L33 | 1 | 31 and "NH.sub.4OH" | USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B | 2003/01/10 15:20 |